IN THE CLAIMS

Following are the current claims. For the claims that have **NOT** been amended in this response, any difference between the claims below and the current state of the claims is unintentional and in the nature of a typographical error:

Claim 1. (Currently Amended) A method of predicting a change in an economy, practiced on a computer, where the economy comprises a plurality of decision makers and economic variables having initial values, said method comprising the steps of:

a) representing the decision makers by a plurality of agents, where each agent comprises internal state and decision rules defining the agent's actions responsive to input messages and the internal state;

b) initializing the internal state of each agent;

c) processing each agent, where processing an agent comprises the steps of:

i) receiving an input message destined for the agent, if one exists;

ii) generating output messages and changes to the agent's internal state based on the input message, the agent's internal state, and the agent's decision rules, where an output message comprises information identifying an indicated destination agent;

iii) repeating steps i) and ii) until there are no more input messages destined for the agent;

d) routing output messages from each agent to indicated destination agents;

e) determining new values for the economic variables from the agents' internal states and the output messages;

f) repeating steps c, d, and e until a terminal condition is reached; and

g) outputting a representation of the change in the economy based on the initial values of the economic variables and the new values of the economic variables.

Claim 2. (Currently Amended) [The method of Claim 1] <u>A method of predicting a change in an economy,</u> practiced on a computer comprising a plurality of processors, [additionally comprising the step of] <u>where the economy comprises a plurality of decision makers and economic variables having initial values, said method comprising the steps of:</u>

> a) <u>representing the decision makers by a plurality of agents, where each agent comprises internal state and decision rules defining the agent's actions responsive to input messages and the internal state;</u>

> b) <u>initializing the internal state of each agent;</u>

> c) <u>processing each agent, where processing an agent comprises the steps of:</u>

>> i) <u>receiving an input message destined for the agent, if one exists;</u>

>> ii) <u>generating output messages and changes to the agent's internal state based on the input message, the agent's internal state, and the agent's decision rules, where an output message comprises information identifying an indicated destination agent;</u>

>> iii) <u>repeating steps i) and ii) until</u> there are no more input messages destined for the agent;

> d) <u>routing output messages from each agent to indicated destination agents;</u>

> e) <u>determining new values for the economic variables from the agents' internal states and the output messages;</u>

> f) <u>repeating steps c, d, and e until a terminal condition is reached;</u>

> g) <u>outputting a representation of the change in the economy based on the initial values of the economic variables and the new values of the economic variables; and</u>

> h) <u>assigning each processor a subset of the agents, where each processor processes the agents assigned thereto.</u>

Claim 3. (Currently Amended) The method of Claim [1] 2, additionally comprising the step of modifying the agent's decision rules during the processing of the agent.

Claim 4. (Original) The method of Claim 3, wherein the step of modifying the agent's decision rules during the processing thereof comprises the steps of:

a) generating a probability vector comprising probabilities the agent will choose among a plurality of selected actions;

b) causing the agent to take a certain selected action based on the probability vector;

c) determining if the economic results following the certain action were favorable or unfavorable; and

d) adjusting the probabilities in the probability vector to increase the probability that the agent will take actions that have been followed by favorable economic results and to decrease the probability that the agent will take actions that have been followed by unfavorable economic results.

Claim 5. (Original) The method of Claim 2, wherein the computer additionally comprises an interprocessor communication facility, and wherein the step of routing output messages comprises, on each processor, the steps of:

a) collecting the output messages from all the agents assigned to the processor;

b) separating the collected output messages into a first group comprising output messages destined for agents assigned to the processor and a second group comprising output messages destined for agents not assigned to the processor;

c) routing output messages from the first group without using the interprocessor communication facility; and

d) routing output messages from the second group using the interprocessor communication facility.

Claim 6. (Original) The method of Claim 3, wherein the plurality of decision makers comprises a plurality of household decision makers, wherein each agent representing a

household decision maker has internal state representing a saved funds balance, and where each agent representing a household decision maker has decision rules for determining whether to buy product from another agent and whether to borrow funds from another agent.

Claim 7. (Original) The method of Claim 3, wherein the plurality of decision makers comprises a plurality of industry decision makers, wherein each agent representing an industry decision maker has internal state representing a number of employees working at the agent and an amount of capital assets of the agent, and where each agent representing an industry decision maker has decision rules for determining whether change the number of employees working at the agent, whether to borrow funds from another agent, and what price to charge for the agent's product.

Claim 8. (Original) The method of Claim 3, wherein the plurality of decision makers further comprises a bank decision maker, and wherein each agent representing a bank decision maker can make loans to other agents and can accept deposits from other agents, and has decision rules for determining a first interest rate to charge on loans and a second interest rate to pay on deposits.

Claim 9. (Canceled)

Claim 10. (Previously Presented) A method of using a multiprocessor computer to predict a change in an economy, where the economy has a plurality of decision makers, comprising the steps of:

    a) representing the plurality of decision makers by a plurality of agents, where each agent has internal state and decision rules and can accept input messages from other agents and generate output messages for other agents;

    b) assigning each agent to at least one processor in the multiprocessor computer;

    c) establishing initial values for at least part of each agent's internal state;

    d) establishing initial input messages for each agent;

e) determining a change in the economy by, on each processor, determining new values for the internal state of each agent assigned to the processor and new output messages from each agent assigned to the processor based on the agent's internal state, input messages for the agent, and the agent's decision rules;

f) on each processor, communicating output messages to corresponding agents;

g) repeating steps e) and f) until a terminal condition is reached; and

h) outputting a representation of the change in the economy based on the agents' internal states and the output messages.

Claim 11. (Previously Presented) The method of Claim 3, further comprising the step of modifying at least one agent's decision rules as the agent is processed.

Claim 12. (Previously Presented) The method of Claim 3, wherein the plurality of decision makers comprises a plurality of household decision makers, a plurality of industry decision makers, and a government decision maker.

Claim 13. (Original) The method of Claim 12, wherein each agent representing a household decision maker has internal state representing a saved funds balance, and wherein each agent representing a household decision maker has decision rules for determining whether to purchase product from an agent representing an industry decision maker and which agent representing an industry maker to purchase product from.

Claim 14. (Original) The method of Claim 12, wherein each agent representing an industry decision maker has internal state representing a number of employees working at the agent and the capital assets of the agent, and wherein each agent representing an industry decision maker has decision rules for determining whether to hire or fire employees and for determining whether to purchase or sell capital assets and for determining a price for the agent's product.

Claim 15. (Original) The method of Claim 12, wherein the plurality of decision makers comprises a bank decision maker, and wherein each agent representing a bank decision maker can make loans to other agents and can accept deposits from other agents, and has

decision rules for determining a first interest rate to charge on loans and a second interest rate to pay on deposits.

Claim 16. (Previously Presented) A multiprocessor computer for predicting a change in an economy, where the economy comprises a plurality of decision makers and economic variables having initial values, said multiprocessor computer comprising:

a) a plurality of processors, where each processor comprises:

    i) intraprocessor message communication facility within each' processor;

    ii) interprocessor communication resources accessible from each processor with message routing to the plurality of processors;

    iii) data storage independently accessible from each processor;

    iv) software storage independently accessible from each processor; and

b) means for controlling the operation of the plurality of processors, comprising:

    i) means for representing the plurality of decision makers by a plurality of agents, where each agent comprises internal state and decision rules;

    ii) means for initializing the internal state of each agent;

    iii) means for inputting the initial values of the economic variables of said economy, where the economic variables are represented as variable conditions;

    iv) means for assigning each agent to at least one processing unit in the plurality of processing units;

    v) means for processing each agent, where processing an agent comprises:

        (1) means for receiving an input message;

        (2) means for updating the internal state of the agent based on the input message, the current internal state of the agent, the decision rules of the agent, and the values of said variable conditions;

(3) means for generating an output message for a destination agent; and

(4) means for repeating (1) through (3) until there are no more input messages for the agent;

vi) means for determining new values for the variable conditions based on a combination of the effects of the plurality of agents;

vii) means for repeating steps v) and vi) until a terminal condition is reached; and

viii) means for outputting a prediction of the change in the economy based on a difference of the new values for the variable conditions and the initial values;

Claim 17. (Previously Presented) The apparatus of Claim 16, further comprising means for modifying at least one agent's decision rules as the agent is processed.

Claim 18. (Withdrawn)

Claim 19. (Withdrawn)